

Appl. No. : 10/827,179
Filed : April 19, 2004

AMENDMENTS TO THE CLAIMS

Please amend the Claims as follows. Insertions are shown underlined while deletions are struck through. Please add Claims 17 and 18.

1 (original): An electrochemical cell comprising a cathode containing a proton-conducting compound as an electrode active material, an anode containing a proton-conducting compound as an electrode active material and an aqueous electrolytic solution containing a proton source as an electrolyte, wherein the electrolytic solution comprises a polymeric compound having an atom with an unpaired electron in its principal chain as an electron-transfer promoter.

2 (original): The electrochemical cell as claimed in Claim 1 wherein the electron-transfer promoter is a polymeric compound which in the principal chain, has oxygen or nitrogen as an atom with an unpaired electron.

3 (original): The electrochemical cell as claimed in Claim 1 wherein the electron-transfer promoter is a polymeric compound having an alkylene oxide moiety in a repeating unit.

4 (currently amended): The electrochemical cell as claimed in Claim 1 wherein the electron-transfer promoter is selected from the group consisting of polyethylene glycol, ~~polyglyceol-polyglycerol~~ and polyethyleneimine.

5 (original): The electrochemical cell as claimed in Claim 1 wherein the polymeric compound has an average molecular weight of 200 to 20,000.

6 (original): The electrochemical cell as claimed in Claim 1 wherein a content of the polymeric compound is 0.01 to 30 wt% to the electrolytic solution.

7 (original): The electrochemical cell as claimed in Claim 1, operable such that as a charge carrier, protons are exclusively involved in a redox reaction of the active materials associated with charge/discharge in both electrodes.

8 (withdrawn): An electrochemical cell comprising:

a cathode containing a proton-conducting compound as a cathode active material, impregnated with an aqueous electrolytic solution containing a proton source as an electrolyte, wherein a polymeric compound having an atom with an unpaired electron in its principal chain is added to the aqueous electrolytic solution as an electron-transfer promoter;

an anode containing a proton-conducting compound as an anode active material, impregnated with an aqueous electrolytic solution containing a proton source as an electrolyte,

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wherein a polymeric compound having an atom with an unpaired electron in its principal chain is added to the aqueous electrolytic solution as an electron-transfer promoter; and

a separator which separates the cathode and the anode.

9 (withdrawn): The electrochemical cell as claimed in Claim 8 wherein each polymeric compound has oxygen or nitrogen as an atom with an unpaired electron.

10 (withdrawn): The electrochemical cell as claimed in Claim 8 wherein each polymeric compound has an alkylene oxide moiety in a repeating unit.

11 (withdrawn): The electrochemical cell as claimed in Claim 8 wherein each polymeric compound is selected from the group consisting of polyethylene glycol, polyglycelol, and polyethyleneimine.

12 (withdrawn): The electrochemical cell as claimed in Claim 8 wherein each polymeric compound has an average molecular weight of 200 to 20,000.

13 (withdrawn): The electrochemical cell as claimed in Claim 8 wherein each polymeric compound is included in the electrolytic solution in an amount of 0.01 to 30 wt%.

14 (withdrawn): The electrochemical cell as claimed in Claim 8, wherein protons are exclusively involved as a charge carrier in a redox reaction of the cathode and anode active materials associated with charge/discharge in the electrodes.

15 (withdrawn): The electrochemical cell as claimed in Claim 8, wherein the cathode active material is an indole π -conjugated compound.

16 (withdrawn): The electrochemical cell as claimed in Claim 8, wherein the anode active material is a π -conjugated polymer.

17 (new): The electrochemical cell as claimed in Claim 6 wherein the content of the polymeric compound is 0.1 to 30 wt% to the electrolytic solution.

18 (new): The electrochemical cell as claimed in Claim 1 wherein the electrolytic solution consists of the proton-source-containing electrolyte and the polymeric compound having the atom with the unpaired electron in its principal chain as the electron-transfer promoter.